

CLAIMS:

1. A method for processing a first optical face and a second optical face of a lens, where the a lens blank is positioned and gripped by a gripping device relying on reference datum indications rendering it possible to obtain topographic
5 orientation for processing both faces of the lens, and wherein not more than one reference datum indication extends on a face of the lens.
2. A method according to claim 1, wherein all reference datum indications are formed on peripheral portions of the lens.
3. A method according to claim 1, wherein faces of the lens are not formed
10 with any reference datum indications.
4. A method according to claim 1, wherein the reference datum indications are preformed on the lens blank.
5. A method according to claim 1, wherein the reference datum indications are formed on the lens blank during a machining step of the lens, prior to
15 processing the second optical face thereof.
6. A method according to claim 1, wherein the reference datum indications are provided by an adapter assembly wherein the lens blank is received by a first component adapted for engagement with a second component associated with the gripping device; wherein said first component and said second component are
20 formed with corresponding reference datum engagement portions.
7. A method according to claim 1, wherein orientation of the lens during its manufacture process is entirely mechanical.
8. A method according to claim 1, wherein blocking and gripping the lens blank during its manufacture process are entirely mechanical.
- 25 9. A method according to claim 4, wherein orientation of the lens blank is achieved by a set of full-spatial reference datum indications processed on the lens blank, indicative of the orientation of the lens blank, wherein said indications are not formed on a face of the lens.
10. A method according to claim 1, wherein the gripping means is integral
30 with or attachable to the lens processing equipment.

11. A method for processing optical faces of a lens, comprising the following steps:

- (a)** Obtaining a lens blank;
- (b)** Gripping the lens blank by a gripping device for use in conjunction with a lens processing machine;
- (c)** Processing the lens blank to obtain full-spatial reference datum indications and processing a first optical face of the lens whereby said reference datum indications define the coordinates of the lens with respect to said first optical face; and wherein not more than one reference datum indication extends on the optical face of the lens;
- (d)** Turning over the lens blank and gripping it while relying on said reference datum indications; and
- (e)** Processing a second optical face of the lens.

12. A method according to claim 11, wherein before step (d), a removable structural support material is applied into a cavity formed adjoining said first optical face, to thereby facilitate processing the second optical lens face.

13. A method according to claim 9, wherein before step (c), a first side of the lens is formed with an anchoring arrangement to increase attachment of the structural support material to the lens.

14. A method according to claim 13, wherein the anchoring arrangement is a peripheral recess.

15. A method according to claim 12, wherein the surface of the first optical face is coated with a protective material prior to applying the structural support material.

16. A method according to claim 11, wherein before step (d) the surface of the first optical face is finished.

17. A method for processing optical faces of a lens, comprising the following steps:

- (a)** Obtaining a lens blank;
- (b)** Gripping the lens blank by a gripping device for use in conjunction with a lens production machine;

- (c) Processing the lens blank to obtain full-spatial reference datum indications and processing a first optical face of the lens whereby said reference datum indications define the coordinates of the lens with respect to said first optical face; and wherein not more than one reference datum indication extends on the first optical face of the lens;
 - (d) Blocking the first optical face of the lens to a blocking chuck, where reference datum indications of the blocking chuck are in register with the reference datum indications of the lens blank;
 - (e) Gripping the blocking chuck by the gripping device; and
 - (f) Processing a second optical face of the lens.
18. A method according to claim 17, wherein after step (c) the first optical face of the lens is finished.
19. A method according to claim 17, wherein the blocking chuck is a mobile device pre-formed with full-spatial mechanical true-position reference datum indications.
20. A method according to claim 11, wherein the blocking chuck is formed full-spatial mechanical and one optical true-position reference datum.
21. A method according to claim 20, wherein orientation of the blocking chuck with reference to the lens blank is based on a combination of mechanical and optical reference datum indications.
22. A method according to claim 17, wherein after step (c) a removable structural support material is applied into a cavity formed adjacent said first optical face, to thereby facilitate processing the second lens face.
23. A method according to claim 17, wherein one or both of the first optical face and the second optical face are finished at a later step.
24. A lens blank pre-formed with reference datum indications providing full-spatial reference datum, whereby the blank may then be gripped by a gripping device for use in conjunction with a lens processing apparatus, relying on said reference datum indications for gripping and processing a first optical face and a second optical face of the lens.
25. A lens blank according to claim 24, wherein not more than one reference datum indication extends on an optical surface of the lens.

26. A lens blank according to claim 24, wherein all reference datum indications extend out of the optical surfaces of the lens.
27. A lens blank according to claim 24, wherein at least one of the reference datum indications are formed on an annular rim on the periphery of the lens blank.
- 5 28. A lens blank according to claim 24, wherein at least one of the reference datum indications is formed by an annular recess on the periphery lens blank.
29. A lens blank according to claim 24, wherein one of the reference datum indications is a radial projection extending from a peripheral face of the lens blank.
30. A lens blank according to claim 24, wherein one of the reference datum
10 indications is a radial indentation extending from a peripheral face of the lens blank.
31. A lens blank according to claim 24, wherein one of the reference datum indications is a tapering peripheral surface of the lens blank.
32. A lens blank according to claim 24, wherein one of the reference datum indications is an axially extending indication.
- 15 33. A lens according to claim 32, wherein the axially extending indication is a recess.
34. A lens blank according to claim 24, wherein the reference datum is a set of pre-formed apertures or recess.
35. A lens blank according to claim 24, comprising at least one discrete
20 reference datum indication for ensuring true-position of the lens.
36. A lens blank according to claim 24, wherein one or both of the first optical face and the second optical face are at least partially pre-formed with optical topography.
37. A method for processing optical faces of a lens, comprising the following
25 steps:
- (a) Obtaining a lens blank pre-formed with reference datum indications providing full-spatial reference datum indications sufficient for processing a first optical face and a second optical face of the lens;
 - (b) Gripping the lens blank by a gripping device for use in conjunction with
30 a lens production apparatus and processing the first optical face of the lens relying on said reference datum indications; wherein not more than one reference datum indication extends on an optical surface of the lens;

- (c) Turning over the lens blank and gripping it while relying on said reference datum indications; and
- (d) Processing the second optical face of the lens.

38. A method for processing optical faces of a lens, comprising the following
5 steps:

- (a) Obtaining a lens blank pre-formed with reference datum indication providing full-spatial reference datum indications sufficient for processing a first optical face and a second optical face of the lens;
- (b) Gripping the lens blank by a gripping device for use in conjunction with
10 a lens production apparatus and processing the first optical face of the lens relying on said reference datum indications; wherein not more than one reference datum indication extends on an optical surface of the lens
- (c) Blocking the first optical face of the lens to a blocking chuck, where reference datum indications of the blocking chuck are in register with
15 the reference datum indications of the lens blank;
- (d) Gripping the blocking chuck by a gripping device for use in conjunction with a lens production apparatus; and
- (e) Processing the second optical face of the lens.

39. A method according to one of claims 17, 37 and 38, wherein before step
20 (d), a removable structural support material is applied into a cavity formed adjoining said first optical face, to thereby facilitate processing the second lens face.

40. An adapter for use in the processing of an optical lens, the adapter comprising a lens blank receiving zone for receiving and fixedly supporting a lens
25 blank, and an engagement zone for engagement with a gripping device for use in conjunction with a lens processing apparatus, said engagement zone comprising reference datum indications providing full-spatial orientation for processing at least a first optical face of the lens.

41. An adapter according to claim 40, wherein the adapter comprises a lens
30 blank receiving member formed with said reference datum indications and adapted for engagement with a mating gripping device fitted with mating reference datum indications corresponding with those of said lens blank receiving member.

42. An adapter according to claim 41, wherein said lens blank receiving member comprises a lens blank locking arrangement.
43. An adapter according to claim 42, wherein the lens blank receiving member is formed with at least one tapering surface.
- 5 44. An adapter according to claim 42, wherein the lens blank receiving member is formed with at least one rotational datum reference indication.
45. An adapter according to claim 42, wherein the lens blank receiving member is formed with at least a flat face extending normal to a longitudinal axis of the adapter.
- 10 46. A method for processing optical faces of a lens wherein processing optical faces of the lens is carried out while a lens blank is gripped at peripheral surfaces thereof.
47. A method for processing optical faces of a lens wherein gripping a lens blank during processing optical faces of the lens is carried out by gripping the blank
15 at portions of the blank having a radius greater than that of the processed optical faces.
48. A method for processing optical faces of a lens wherein processing optical faces of the lens is carried out while a lens blank is directly gripped.
49. A method for processing a first optical face and a second optical face of a
20 lens, where gripping and orientating a lens blank with respect to grippers of a lens processing equipment is carried out by a chuck associated with each face of the lens and being in full register with one another.
50. A method according to claim 49, wherein both faces of the lens are processed by machining.
- 25 51. A method according to claim 49, wherein one chuck is a-priory integrally fixed with the lens blank.
52. A method according to claim 51, wherein the a-priory integral chuck is made of a machinable material.
53. A method according to claim 51, wherein the a-priory integral chuck is
30 made of the same material as the lens blank material.
54. A method according to claim 49, wherein one chuck is fixedly attached to the lens blank.

55. A method for processing a first optical face and a second optical face of a lens, comprising the following steps:

- (a) Obtaining a lens blank with an a-priory integral chuck extending at one face thereof;
- 5 (b) Processing a first face of the lens whilst gripping the blank by said integral chuck;
- (c) Attaching an additional chuck to said first face in full register with said integral chuck;
- (d) Gripping the blank at said additional chuck and machined away the
10 integral chuck and processing the second face of the lens.

56. A method according to claim 55, wherein step (c) is carried out by relying on mechanically obtained reference datum.

57. A method for processing a first optical face and a second optical face of a lens, comprising the following steps:

- 15 (a) Obtaining a simple lens blank;
- (b) Attaching a first chuck to a face of the blank;
- (c) Processing a first face of the lens whilst gripping the lens blank by said first chuck;
- (d) Blocking a second chuck to said first face of the lens, in full register
20 with said first chuck;
- (e) Gripping the blank by said second chuck, removing the first chuck and processing the second face of the lens.

58. A method according to claim 57, wherein at step (e) the first chuck is removed during processing of the second face of the lens.

25 **59.** A method according to claim 57, wherein step (d) is carried out by relying on mechanically obtained reference datum.

60. An apparatus for orientation and blocking of a first and a second chuck to a lens blank, said apparatus comprising a first chuck gripper and a second chuck gripper where at least one of said grippers is axially displaceable along an axis
30 parallel to an axis extending between said chuck grippers, whereby chucks gripped by said grippers are in full register with one another.

- 61.** An apparatus according to claim 60, wherein said chuck grippers are axially aligned.
- 62.** An apparatus according to claim 61, wherein at least one of the grippers is tiltable about the axis extending between the chuck grippers.
- 5 **63.** An apparatus according to claim 61, wherein at least one of the grippers is rotateabl about the axis extending between the chuck grippers.